NORTH COAST INTEGRATED REGIONAL WATER MANAGEMENT PLAN

PROPOSITION 84 IMPLEMENTATION GRANT PROPOSAL, ROUND 1

ATTACHMENT 6: MONITORING, ASSESSMENT, & PERFORMANCE MEASURES

Integrated Regional Water Management Program
Applicant: Humboldt County

North Coast Integrated Regional Water Management Plan
Proposition 84, Round 1 Implementation Grant

Attachment 6: Monitoring, Assessment, and Performance Measures

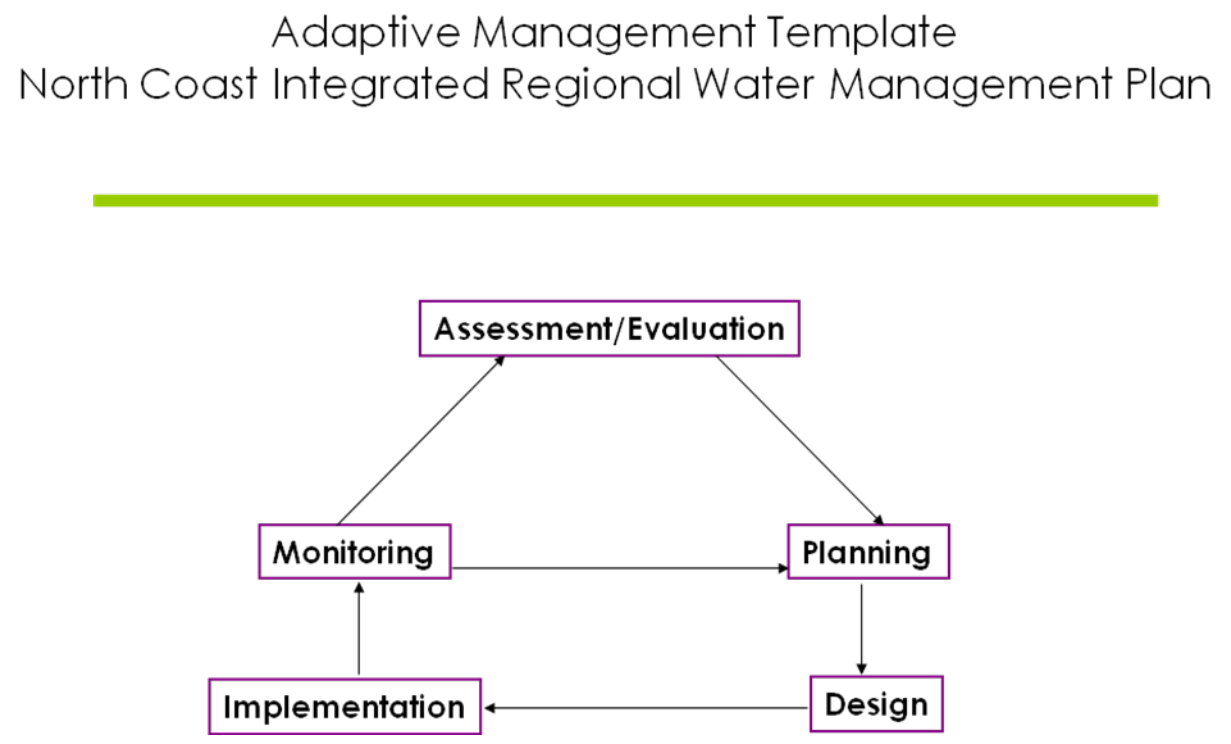
The North Coast Integrated Regional Water Management Plan (NCIRWMP) was established in 2005 as "the first major milestone in an adaptive management process for the North Coast." The Phase I NCIRWMP developed a strongly science-based regional planning and implementation framework that included a synthesis of regional data and key issues, provided a guide for assessment, evaluation, planning, collaboration, project prioritization, implementation and monitoring. This foundation was built upon to include detail about coastal watershed issues of concern and opportunities for enhancement in the Phase II NCIRWMP. As Phase III is developed, the NCIRWMP continues to evolve through an adaptive management process, with new data and monitoring of completed projects providing information critical for the ongoing refinement of projects and the planning process. In service of this science-based adaptive management approach, the NCIRWMP is re-evaluated biennially to ensure that it includes the latest scientific and technical data, new regulatory and legislative requirements, and other information relevant to the key goals and objectives of the region. A schematic of the NCIRWMP adaptive management framework is included below (*see Figure 1. Schematic of NCIRWMP Adaptive Management Approach*).

Evaluation and measurement mechanisms of the North Coast IRWMP are based on the same adaptive management approach that guides the overall NCIRWMP process. Each project has identified appropriate performance measures (*Table 6.1, Project Performance Measures*) to determine how it is meeting intended goals; results are analyzed and fed back into the evaluative and management process to inform future planning. Water quality monitoring is SWAMP compatible and all other monitoring will be conducted in adherence to state agency (DFG, DWR, SWRCB, etc.) standards. Each project will develop a monitoring system to verify project performance; these data will be collected in compliance with state data protocols such as Stream Pollution Trends (SpoT) Monitoring, the North Coast Benthic Index of Biotic Integrity (B-IBI) (SWRCB; http://www.swrcb.ca.gov/water_issues/programs/swamp/reports.shtml#spot), and the Project Site Completion Form (DFG; http://www.dfg.ca.gov/fish/Resources/HabitatManual.asp). In some cases (e.g., Happy Camp Water Treatment System Upgrade), performance measures will be simple and of short duration (photo-monitoring and administrative documentation) while for others (e.g., Ackerman Creek Habitat Restoration), they will be more complex (plant surveys, bio-assessment, habitat inventory) and occur over a longer time period as part of an effort to not only evaluate project effectiveness, but to also provide long-term environmental data to inform the local and regional adaptive management process. Projects with educational components with utilize feedback during stakeholder events and survey responses to evaluate effectiveness. For more information about specific performance measures, please see the following performance measures tables for each project in Attachment 3, Work Plan.

Data collection will occur in site-specific locations appropriate to measure relevant scientifically established variables. Each project will determine data collection locations based on relevant parameters and the likely extent of project impacts. Types of analyses will vary depending upon the parameter being measured; statistical analyses and calculation of maximum weekly average temperatures (MWAT) will be performed on water quality data such as temperature while simple counts and records comparisons will be used to determine participating landowners or reductions in water use. In all cases, summary statistics shall be developed which will allow the NCIRWMP staff to share data with DWR, the public and relevant agencies.

As part of its ongoing, adaptive management approach to project planning and implementation, the NCIRWMP Phase III Plan will incorporate a Data Management Plan - a framework for identifying appropriate indicators or performance measures, developing objective project and plan performance assessment, and facilitating adaptive management at site-specific, local and regional scales. Performance monitoring data from the suite of projects in this Proposal will be incorporated into the iterative Data Management Plan as the NCIRWMP continues to evolve to better reflect and serve the North Coast Region. As the Data Management Plan develops, greater opportunities for data sharing and regional analysis will occur, increasing the amount and quality of data available to inform water management decisions.

Figure 1. Schematic of NCIRWMP Adaptive Management Approach



A. Russian River/Bodega WMA

402 - Ackerman Creek Habitat Restoration, Pinoleville Pomo Nation

Project Performance Measures Table **Project Title: Ackerman Creek Habitat Restoration** **Category of Project Work Tasks: Education, Outreach and Capacity Building**					
A	**B**	**C**	**D**	**E**	**F**
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Increase youth engagement in ecological restoration	Increase in youth engagement in invasive plant removal and native plant restoration	1. Number of youth trained 2. Number of youth hours worked 3. Number of skills developed	1. No more than a 50% drop in the number of youth trained and those engaged in maintenance activities at the project's end. 2. At least 5 youth report learning 3 or more restoration skills	1. Semi-annual reports 2. Surveys of youth workers	1. 10 youth involved in training 2. 5 youth involved in on-going project monitoring and maintenance 3. 5 youth with 3 key restoration skills
Category of Project Work Tasks: Habitat Restoration					
A	**B**	**C**	**D**	**E**	**F**
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Improved habitat for salmonids and other wildlife	Increase in the amount of suitable habitat for salmonids and other	1. Area cleared of invasive species 2. Number of native riparian plants planted	1. Percent native riparian plant species cover vs. invasive species cover 2. Percent improvement in	1. Intended plant inventory protocol (see: http://www.parks.ca.gov/pages/734/files/imap%20plant%20community%20protocol%20table%20.pdf)	1. 90% decrease in invasive species over project period by 2013 2. 30% increase in native plant

	wildlife in the PPN reaches of Ackerman Creek	3. Number of acres of riparian habitat restored 4. Improvements in the bio-assessment score of Ackerman Creek	salmonid habitat in bio-assessment measures	and (http://science.nature.nps.gov/im/monitor/Protocols.cfm) 2. Pyramid Lake Paiute Tribe Bio-assessment tool http://water.epa.gov/scitech/swguidance/waterquality/standards/criteria/aqlife/biocriteria/upload/2009_04_22_biocriteria_modules_tribe101-01-introduction.pdf 3. DFG Salmonid Habitat Restoration Manual Habitat Inventory Methods and Project Evaluation and Monitoring (http://www.dfg.ca.gov/nafwb/pubs/1998/manual3.pdf)	cover in riparian zone by 2017 3. 20% improvement in bio-assessment scores averaged over PPN reaches of Ackerman Creek by 2017
Improved habitat for culturally important plants	Increase in the amount of suitable habitat for cultural plants, including fiber plants, medicines and wild foods in the PPN reaches of Ackerman Creek	1. Area cleared of invasive species 2. Number of native riparian plants planted 3. Number of acres of riparian habitat restored 4. Improvements in the bio-assessment score of Ackerman Creek 5. Species diversity measures increase	1. Percent native riparian plant species cover vs. invasive species cover 2. Percent improvement in salmonid habitat in bio-assessment measures 3. Increases in amount and variety of plants harvested from riparian zone over the course of the project	1. Intended plant inventory protocol (see: http://www.parks.ca.gov/pages/734/files/imap%20plant%20community%20protocol%20table%20.pdf) and (http://science.nature.nps.gov/im/monitor/Protocols.cfm) 2. Pyramid Lake Paiute Tribe Bio-assessment tool http://water.epa.gov/scitech/swguidance/waterquality/standards/criteria/aqlife/biocriteria/upload/2009_04_22_biocriteria_modules_tribe101-01-introduction.pdf 3. Surveys of harvesting practices	1. 90% decrease in invasive species over project period by 2012 2. 30% increase in native plant cover in riparian zone by 2017 3. 100% increase in plant harvesting over the course of annual surveys by 2017 4. 20% improvement in bio-assessment scores averaged over PPN reaches of Ackerman Creek by 2017

345 - Bodega Bay HU Water Resources Management Project, Gold Ridge RCD

Project Performance Measures Table
Project Title: Bodega Bay HU Water Resources Management Project

Category of Project Work Tasks: Habitat Restoration

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Conserve and enhance native salmonid populations by reducing non-point source pollution, revegetating denuded riparian areas, installing instream habitat structures, and excluding livestock from stream corridors	Increase in the amount of suitable habitat for salmonids	1. Number of eroding gullies treated. 2. Linear feet of native riparian plants planted 3. Linear feet of livestock exclusionary fence installed 4. Number of Large Woody Debris (LWD) structures installed	1. Cubic yards of sediment prevented from entering a watercourse 2. Percent increase in native riparian plant cover 3. Percent increase in fenced riparian area 4. Percent increase in pool shelter rating.	1. *Salmonid Freshwater Targets for Sediment-Related Parameters*, NCRWQCB/SWRCB, 2004 2. *SWAMP QAPP*, SWRCB, 2002 3. *Rapid Bioassessment Protocols for use in Streams and Wadeable Rivers*, Barbour et al 1999 4. DFG *Salmonid Habitat Restoration Manual Habitat Inventory Methods and Project Evaluation and Monitoring* (http://www.dfg.ca.gov/nafwb/pubs/1998/manual3.pdf) 5. *Channel Erosion Equation* or SCS Direct Volume Method 6.UCCE, *Sediment TMDL Site Inventory & Monitoring Methods*	1. 4,200 cubic yards of sediment conserved by 2013 2. 80% survival of riparian plants by 2015 3. 4 miles of riparian area fenced that is not currently fenced (i.e. 100% increase) by 2013 3. Increasing trend in residual pool depths, shelter rating, and pool frequency (towards 40-50%) by 2017
Conserve and enhance critical instream flows by reducing water withdrawals	Reduce instream water withdrawal from the Estero Americano and Salmon Creek	1. Reduced summer pumping 2. Amount of increased flow to waterbody due to conservation and reduced water withdrawals. 3. Number of catchment tanks installed	1. Instream water quality improvements 2. Increase in local water supply that does not impact other beneficial uses.	1. *Salmonid Freshwater Targests for Sediment-Related Parameters*, NCRWQCB/SWRCB, 2004 2. SWAMP QAPP, SWRCB, 2002 3. *Rapid Bioassessment Protocols for use in Streams and Wadeable Rivers*, Barbour et al 1999 4. DFG *Salmonid Habitat Restoration Manual Habitat Inventory Methods and Project Evaluation and Monitoring* 5. *Volunteer Stream Monitoring; A Methods Manual*, US EPA (1997)	1. Increasing trend in # of summer days with pools connected by 2017 2. Increasing trend in # of weeks with average pool DO at or above 7 mg/L by 2017 3. Increasing trend in # of weeks with pool MWAT at or below 15°C by 2017

Project Performance Measures Table
Project Title: Bodega BAY HU Water Resources Management Project

Category of Project Work Tasks: Water Supply Reliability

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Provide water supply reliability for two disadvantaged communities, while minimizing environmental impacts	1. Reduce leakage 2. Install BWC storagetank 3. Demonstrate reliable, flexible off-stream storage for low-flow summer months	1. Number of leak sites addressed or delivery systems improved. 2. Designs and specifications for BWC tank approved by permitting agencies	1. Number of gallons of water conserved per month through improvements to infrastructure 2. Number of gallons of water added to BWC water supply from tank installation	1. Tools – District water use records Methods – Compare gallons of water used per month before and after infrastructure repair 2. Tools - District water supply records Methods – Determine the amount of additional water made available through the completion of the BWC storage tank	1. 75,000 gallons of water conserved yearly 2. Repair 100% of leaking infrastructure over next 2 years (by 2013) 3. 300,000 gallons of additional water available to BWC through completion of construction of Bodega Water Company storage tank by 2012

Project Performance Measures Table
Project Title: Bodega Bay HU Water Resources Management Project

Category of Project Work Items: Environmental Stewardship and Education

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Increase water conservation awareness throughout the Bodega Bay HU	Increase water conservation throughout the Bodega Bay HU through a	1. Number of participants in public outreach events 2. Number educational materials distributed to schools 3. Number of	Percent increase in landowners knowledge about the importance of water conservation and	Opinion surveys administered before and after workshops or group meetings, mailed to residents before and after educational events, or provided	1. 20-40 people attending each workshop and tour 2. 80% positive evaluations of materials and workshops

Project Performance Measures Table

Project Title: Bodega Bay HU Water Resources Management Project

Category of Project Work Items: Environmental Stewardship and Education

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
	community focused education program	workshops/informational events held 4. Number of newsletters distributed	their role in maintaining it 2. Percent of participants who indicate that they found workshops and tours useful and helpful 3. Number of people actively involved in watershed council meetings	to schools.	

292 - Lower Russian River Water Quality Improvement Project, Sotoyome Resource Conservation District

Project Performance Measures Table
Project Title: Lower Russian River Water Quality Improvement Project

Category of Project Work Tasks: Load Reduction Activities: Sediment Reduction Projects

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Improve aquatic habitat for endangered salmon within the lower Russian River system by implementing road drainage treatments to reduce excessive sediment delivery into nearby salmonid bearing streams in the Austin Creek watershed.	Sediment pollution reduction	1. Five miles of high-priority roads decommissioned 2. Ninety-six sediment source treatments (such as culvert replacement, drainage ditch excavation, water bar installation, or other measures) 3. Four landowners (including Armstrong Redwoods State Park) voluntarily implementing sediment-related BMPs	1. Sediment reduction due to implementation of BMPs 2. Percent decrease in sediment-related water quality parameters	1. Photo monitoring 2. Water Quality evaluation; may include but not limited to: turbidity/TSS and gravel embeddedness	1. Implement 100% of recommended erosion control upgrades successfully by 2012 2. 13,000 yd^3 decrease in sediment input into Austin Creek tributaries by 2013

Project Performance Measures Table
Project Title: Lower Russian River Water Quality Improvement Project

Category of Project Work Tasks: Education, Outreach, and Capacity-building: Sediment Reduction Projects

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Educate Landowners	Increase	The number of	1. Increase in number of	Count of Landowner interest	1. 20% increase in the number

Project Performance Measures Table

Project Title: Lower Russian River Water Quality Improvement Project

Category of Project Work Tasks: Education, Outreach, and Capacity-building: Sediment Reduction Projects

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
and the public about the detrimental effects of rural roads on aquatic ecosystems and the appropriate construction and maintenance for hydrologically sound rural roads	landowner participation in sediment reduction strategies	landowners voluntarily participating in sediment reduction projects	landowners seeking to voluntarily participate in sediment reduction projects 2. Increase in sustained habitat maintenance and management agreements	letters and Access Agreements pre- and post-project	of landowners voluntarily participating in sediment reduction projects by 2012 2. Access agreements to 50% of Austin Creek watershed area by 2015

Project Performance Measures Table

Project Title: Lower Russian River Water Quality Improvement Project

Category of Project Work Items: Planning, Research, Monitoring, or Assessment Activities: Pathogen Pollution Prevention Program

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Assess where and what types of pathogen loading are occurring in the Lower Russian River watershed	Determine degree of pathogen loading in system, correlate with identified high risk areas that may contain septic system failure	1. Number of septic evaluations subsidized 2. Number of monitoring events completed 3. A minimum of 6 months of data collected, analyzed, and summarized :		Agency-approved protocols	1. Site-specific identification of failing septic systems by 2012 2. Recommendations for future assessments and action to reduce sources of non-septic pathogen pollution by 2012

Project Performance Measures Table

Project Title: Lower Russian River Water Quality Improvement Project

Category of Project Work Tasks: Education, Outreach, and Capacity-building Activities for Pathogen Pollution Prevention Program

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Increase public awareness in relation to septic system function, pathogen pollution, and impacts to water quality and public health	Increase in landowner awareness of potential impacts of septic mismanagement and the importance of water quality and their role in maintaining it	The number of landowners voluntarily participating in community meetings and/or responding to Landowner Surveys	1.Percent increase in landowners' interests in septic function and pathogen pollution prevention 2. Percent increase in landowners' knowledge about the importance of water quality and their role in maintaining it	1. Percent return rate of Landowner Surveys; 2. Count of Landowner interest letters and promises of participation	1. 10% percent return rate of Landowner Surveys 2. At least three landowners seeking permit assistance for septic repairs by 2015 3. At least five landowners who can accurately describe the importance of water quality and their role in maintaining it by 2012

364 - Mendocino Jumpstart Integrated Water Plan, Mendocino County Water Agency/Planning Department

Project Performance Measures Table

Project Title: Mendocino Jumpstart Integrated Water Plan

Category of Project Work Tasks: Water Conservation, Supply Reliability Enhancement & Recycling: Mendocino College Sports Fields Irrigation Recycling

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Reduce volume of potable water applied to sports fields during irrigation season	1. Reduced use of potable water from Millview Water District during peak demand periods 2.Increased public awareness about conservation, irrigation efficiency, and water recycling	1. Estimated volume of water through the recycled system applied to the sports fields 2. Number of students educated about project component via classes offered 3. Number of partner agency tours held before, during, after implementation	1. Reduced consumption of potable water on irrigated sports fields. 2. Media release highlighting student involvement and project benefits 3. Number of partner agencies/entities attending tours	1. Dedicated irrigation meter for comparison to pre-project irrigation. 2. Utility bill comparison to pre-project irrigation 3. New system capacity and hours of operation to calculate volume pumped	1. 200,000 to 1,000,000 gallons per month recycled, depending upon weather conditions by 2012 2. At least 5% reduction in utility bill by 2012 3. At least 20 students educated about complex water recycling systems by 2012 4. At least 10 partner agencies/entities attending tours through 2012

Project Performance Measures Table

Project Title: Mendocino Jumpstart Integrated Water Plan

Category of Project Work Tasks: Load Reduction: County Campus Parking Lot Retrofit

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Reduce untreated stormwater runoff to Orrs Creek.	Improved water quality in Orrs Creek	Volume of stormwater treated discharged into Orrs Creek	Decreased sedimentation and turbidity in Orrs Creek	1. Photo documentation of County stormwater runoff to Orrs Creek 2. Turbidity assessment of County stormwater runoff to Orrs Creek 3. Volume calculations based upon rainfall events	1. Photo- documented improvement in County stormwater runoff to Orrs Creek by 2012 2. > 20% decrease in turbidity values of County stormwater runoff into Orrs Creek by 2015

Project Performance Measures Table

Project Title: Mendocino Jumpstart Integrated Water Plan

Category of Project Work Tasks: Education and Outreach: County Campus Parking Lot Retrofit

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Create Demonstration Project for Low Impact Development (LID) for use in education and promotion	Increased awareness of LID techniques among engineers/contractors	Number of contractors/engineers/ architects/general public who attend workshops or tour the facility.	1. Increased knowledge of LID techniques within the building community 2. Increased implementation of LID projects in Mendocino County	1. Opinion and behavior surveys 2. Reporting of projects implementing LID design elements in Mendocino County	1. 15% increase in LID knowledge within local building community by 2013 2. 25% increase in projects in Mendocino County implementing LID design elements by 2013

Project Performance Measures Table
Project Title: Mendocino Jumpstart Integrated Water Plan

Category of Project Work Tasks: Habitat Restoration: Mendocino College Vernal Pool Construction

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Create vernal pool habitat	Increase the amount of vernal pool habitat	Area (sq. ft.) of vernal pool habitat created	Plant species change	State-accepted plant inventory protocols such as: • CNPS Vegetation Rapid Assessment Protocol; http://www.cnps.org/cnps/vegetation/protocol.php • The US Fish and Wildlife Service Vernal Pool Data Sheets; http://www.dfg.ca.gov/wildlife/nongame/survey_monitor.html	Increase in vernal pool habitat by ¼ to ½ acre by 2015

Project Performance Measures Table
Project Title: Mendocino Jumpstart Integrated Water Plan

Category of Project Work Tasks: Education and Outreach: Mendocino College Vernal Pool Construction

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
1. Educate community students & general public about value of vernal pools	Increased public knowledge of vernal pool	Number of people attending tours conducted over a 3-year period	More knowledgeable students and community citizens about value and functions of vernal pools	1. Feedback during tours 2. Surveys following tour	1. Participation of at least 60 people/year 2. 75% of tour attendees indicating that their

2. Site continues as educational component for College Biology and Agricultural classes beyond grant termination	functions and values				knowledge of vernal pool function and value has increased 3. On-going education/research of vernal pools through at least 2020

Project Performance Measures Table
Project Title: Mendocino Jumpstart Integrated Water Plan

Category of Project Work Tasks: Load Reduction: Mendocino College Bioswale/Wetland Construction

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Capture parking lot surface runoff for infiltration and biological treatment in bioswales.	Reduced volume of untreated surface flow entering Hensley Creek	Reduction in untreated stormwater discharged to Hensley Creek	Length of wetted soil surface season.	Photo documentation	Extend wetted soil surface season by one month by 2012

Project Performance Measures Table
Project Title: Mendocino Jumpstart Integrated Water Plan

Category of Project Work Tasks: Habitat Restoration: Mendocino College Bioswale/Wetland Construction

A	B	C	D	E	F

Project Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Measurement Tools and Methods	Targets
Permanent increase seasonal wetland habitat on the College campus	Creation of sustainable wetland habitat that is part of a stormwater treatment train	Area of permanent wetland habitat established	1. Increase in seasonal wetland habitat due to retained stormwater runoff 2. Number of wetland plant and animal species utilizing wetland	1. Wetland plant surveys using state-approved protocols such as the CNPS Vegetation Rapid Assessment http://www.cnps.org/cnps/vegetation/protocol.php 2. Wetland animal surveys such as: Species-specific protocols available at: http://www.dfg.ca.gov/wildlife/nongame/survey_monitor.html	1. Four new native plant species utilizing new habitat by 2013 2. Four new native animal species utilizing new habitat by 2013

Project Performance Measures Table

Project Title: Mendocino Jumpstart Integrated Water Plan

Category of Project Work Tasks: Outreach and Education: Mendocino College Bioswale/Wetland Construction

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
1. Educate community students & general public about stormwater runoff and wetland values 2. Site continues as educational component for College Biology and	Increased public knowledge of stormwater runoff issues and wetland values	Number of people attending tours conducted over a 3-year period	More knowledgeable students and community citizens about stormwater runoff issues and wetland values	1. Feedback during tours 2. Surveys following tour	1. Participation of at least 60 people/year 2. 75% of tour attendees indicating that their knowledge of stormwater runoff issues and wetland function and value has increased 3. On-going

Project Performance Measures Table

Project Title: Mendocino Jumpstart Integrated Water Plan

Category of Project Work Tasks: Outreach and Education: Mendocino College Bioswale/Wetland Construction

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Agricultural classes beyond grant termination					education/research of vernal pools through at least 2020

Project Performance Measures Table

Project Title: Mendocino Jumpstart Integrated Water Plan

Category of Project Work Tasks: Water Conservation: Mendocino College and County Agriculture Building Rainwater Catchment and Xeric Landscape

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Establish xeric landscape and utilize rainwater catchment to demonstrate water conservation techniques	1. Creation of sustainable xeric landscape 2. Creation of a functional rainwater catchment irrigation system	1. Square feet of xeriscape installed 2. Installation of functional rainwater harvest system	Number of xeric plants established Percent decrease in the amount of irrigation needed to maintain landscape	1. Plant counts 2. Comparison of pre-and post-project water use	1. At least 4 native plant species to be established per site with densities ranging from 1 per sq. ft to 1 per 10 sq. ft. 2. At least 50% reduction in the amount of water used for landscape irrigation by 2012

Project Performance Measures Table

Project Title: Mendocino Jumpstart Integrated Water Plan

Category of Project Work Tasks: Outreach and Education: Mendocino College and County Agriculture Building Rainwater Catchment and Xeric Landscapes

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
1. Educate community students & general public about rainwater catchment and value of xeriscape 2. Site continues as educational component for College Biology and Agricultural classes beyond grant termination	Increased public knowledge of about rainwater catchment and value of xeriscape	Number of people attending tours conducted over a 3-year period	More knowledgeable students and community citizens about rainwater catchment and value of xeriscape	1. Feedback during tours 2. Surveys following tour	1. Participation of at least 60 people/year 2. 75% of tour attendees indicating that their knowledge of stormwater runoff issues and wetland function and value has increased 3. On-going education/research of vernal pools through at least 2020

Project Performance Measures Table

Project Title: Mendocino Jumpstart Integrated Water Plan

Category of Project Work Tasks: Water Conservation: County Roundabout Turf to Xeric Landscape Conversion

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**

Project Performance Measures Table

Project Title: Mendocino Jumpstart Integrated Water Plan

Category of Project Work Tasks: Water Conservation: County Roundabout Turf to Xeric Landscape Conversion

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Demonstrate low water xeriscape alternative to turf lawn	1. Reduced water use for irrigation	1. Volume of irrigation water saved	1. Percent decrease in irrigation water at this site	1. Comparison of pre- and post-project water usage at this installation site	1. >50% decrease in irrigation water use at this demonstration site by 2012

Project Performance Measures Table

Project Title: Mendocino Jumpstart Integrated Water Plan

Category of Project Work Tasks: Outreach and Education: County Roundabout Turf to Xeric Landscape Conversion

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Actively promote attractive low water xeriscape alternative to turf lawn	1. Public interest in installing xeriscape 2. Public knowledge of detrimental effects of turf lawn and	1. Number of xeriscape installations in the County 2. Number of people attending workshops or touring site	1. Percent decrease in irrigation water at this site 2. Increase in xeriscape installations throughout County 3. Increase in number of residents aware of detrimental effects of turf lawn and benefits of	1. Count of new xeriscape installations, by requesting notification/photos of new installations 2. Opinion and behavior surveys such as http://www.michigan.gov/deq/0,1607,7-135-3313_3682_3714-75944--,00.html	1. 5 new xeriscape installations throughout County per year 2. 75% of survey respondents indicating an increase in knowledge about benefits of xeriscape and detrimental effects of turf

Project Performance Measures Table
Project Title: Mendocino Jumpstart Integrated Water Plan

Category of Project Work Tasks: Outreach and Education: County Roundabout Turf to Xeric Landscape Conversion

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
	benefits of xeriscape		xeriscape.		

Project Performance Measures Table
Project Title: Mendocino Jumpstart Integrated Water Plan

Category of Project Work Tasks: Outreach and Education: Mendocino College Educational Opportunities from Project Components

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Expand community knowledge and skills related to LID and sustainable development techniques	Students are educated and trained in skills associated with project components	Number of courses conducted Number of students enrolled	Students are able to successfully describe, demonstrate and apply class content as delineated by individual course learning outcomes	1. Performance on formative and summative assessments (i.e. exams, papers, individual and group projects) 2. Student satisfaction surveys such as http://www.michigan.gov/deq/0,1607,7-135-3313_3682_3714-75944--,00.html	1. 85% of students successfully complete the courses and 2. 85% of students indicate high satisfaction

374 &376 - Nissa-kah Creek Fish Passage Removal, Hopland Band of Pomo Indians

Project Performance Measures Table
Project Title: Nissakah Fish Passage Improvements

Category of Project Work Tasks: Habitat Restoration

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Restore viable populations of steelhead trout on the Hopland Reservation via fish passage improvements on NissaKah Creek	Increase in number of spawning steelhead in the headwater streams on the Hopland Reservation	1. Improve passage through the Nokomis Road culvert for all age classes of steelhead trout while leaving the existing culvert in place 2. Improve passage through the culvert at Highway 175 for all age classes of steelhead trout while leaving the existing culvert in place 3. Increased count of spawning steelhead in Nissakah Creek and increased abundance of downstream migrants	Percent increase innumber of fish migrating upstream	Annual Steelhead Surveys (Spawners, Redds, Juveniles), which take place February through August yearly	400 % increase in steelhead counts – both spawners and downstream migrants - above culvert by 2020

393 - Russian River *Arundo donax* Removal and Riparian Enhancement Program, Sotoyome Resource Conservation District

Project Performance Measures Table
Project Title: Russian River *Arundo donax* Removal and Riparian Enhancement Program

Category of Project Work Tasks: Habitat Restoration

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Improve riparian habitat conditions in the Russian River watershed	1. Increase bank stability 2. Increase native plant cover 3. Increase suitable habitat for salmonids 4. Reduce the densest infestations of *Arundo* 5. Eradicate outlier populations of *Arundo*	1. Number of acres of *Arundo* removed **2.** Number of dense *Arundo* stands removed along the mainstem Russian River 3. Number of outlier populations removed	1. Percent decrease in acres of *Arundo* 2. Percent increase in native riparian vegetation 3. Percent decrease in number of dense *Arundo* stands along the mainstem Russian River 4. Percent decrease in outlier populations	1. DFG 1600 permits 2. Plant surveys using state-approved protocols such as the CNPS Vegetation Rapid Assessment http://www.cnps.org/cnps/vegetation/protocol.php 3. DFG Salmonid Habitat Restoration Manual Ri	1. Eradication of Arundo 2. At least 60% increase in native riparian vegetation in locations where *Arundo* has been removed by 2018 3. 100% decrease (complete eradication) of dense *Arundo* stands along the mainstem Russian River by 2013 4. 75% decrease in outlier populations of Arundo. By 2013 5. 100 % removal (complete eradication) of *Arundo* on at least one tributary by 2013
Improve riparian habitat through revegetation and	Increase riparian canopy cover and	Number of native plants planted	1. Amount of native plant cover	1. DFG 1600 permits 2. Plant surveys using state-approved protocols such as the	1. At least 60 % native plant

Project Performance Measures Table
Project Title: Russian River *Arundo donax* Removal and Riparian Enhancement Program

Category of Project Work Tasks: Habitat Restoration

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
native plant succession	overall native plant cover		2, Native plant survival	CNPS Vegetation Rapid Assessment http://www.cnps.org/cnps/vegetation/protocol.php 3. DFG Salmonid Habitat Restoration Manual Riparian Habitat Restoration	cover in treated areas by 2018 2. At least 80% survival rate for planted nativesby 2013

Project Performance Measures Table
Project Title: Russian River *Arundo donax* Removal and Riparian Enhancement Program

Category of Project Work Tasks: Education and Outreach

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Educate landowners about the *Arundo* removal program and the negative effects of invasive species on riparian habitat and	Increase the knowledge of landowners and community members about the negative	1. Number of workshops held 2. Number of access agreements 3. Landowner	1. Percent increase in number of residents implementing *Arundo* removal and or native plant restoration projects 2. Increase in number of	1. Access agreement records 2. Post-workshop surveys such as http://www.michigan.gov/deq/0,1607,7-135-3313_3682_3714-	1. Increase landowner participation in *Arundo* removal efforts by 20% by 2015 2. 75% of survey respondents indicating an increase in

Project Performance Measures Table

Project Title: Russian River *Arundo donax* Removal and Riparian Enhancement Program

Category of Project Work Tasks: Education and Outreach

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
salmonids.	impacts of *Arundo* and how to remove it	attendance at workshops	landowners aware of the negative impacts of Arundo and how to remove it	75944--,00.html	knowledge about benefits of xeriscape and detrimental effects of turf

396 - The Copeland Creek Watershed Detention/Recharge, Habitat Restoration, and Steelhead Refugia Project, Sonoma County Water Agency

Project Performance Measures Table

Project Title: The Copeland Creek Watershed Storm Water Detention, Groundwater Recharge, Habitat Restoration, and Steelhead Refugia Project

Category of Project Work Tasks: Planning, Research, Monitoring and Assessment

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Provide adequate flood protection and channel conveyance capacity and conserve and enhance native salmonid populations by protecting and restoring required habitats, water quality, and watershed processes	Prepare 30% design and environmental documents for storm water detention of up to 200 acre-feet in two to three off-stream basins located in the alluvial fan east of Petaluma Hill Road	1. RFP 2. Consultant Contracts 3. Kickoff Meeting 4. Conceptual Plan 5. 30% Design and Environmental Documents	1. Percent completion of Design and Environmental Review; 2. Input received from project partners and regulatory agencies 3. Ready to proceed with furthering the design and environmental review documents	Internal and regulatory review to ensure document completion to level indicated	Design and Environmental Review 30% complete by 2012

Project Performance Measures Table

Project Title: The Copeland Creek Watershed Storm Water Detention, Groundwater Recharge, Habitat Restoration, and Steelhead Refugia Project

Category of Project Work Tasks: Habitat Restoration

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Improve quantity and quality of instream aquatic habitat for the benefit of native warm and cold water fisheries through the restoration and enhancement ofapproximately 21 acres of riparian habitat along 9,400 linear feet of Copeland Creek (Phase 1)	Enhancement and restoration of approximately 21 acres of riparian habitat along 9,400 linear feet of Copeland Creek. Includes conversion of up to 10 acres of area currently dominated by landscaping and Himalayan blackberry scrub. Improve quantity and quality of habitat available for native wildlife	1. Number of native plants installed 2. Acres of habitat converted, enhanced or restored 3. Area and volume of exotic species removed	1. Plant survival 2. Acres restored or enhanced	1. Sonoma County Water Agency Stream Maintenance Manual 2. Implementation, monitoring and maintenance Reports 3. GIS maps 4. Field measurements 5. Purchase invoices 6. Stream stage gage 7. Volume measurements (truck loads) 8. Photography 9. Vegetative cover sampling (line intercept, quadrat or point)	1. 75% survival of installed plants by 2012 2. 21 acres of riparian habitat converted/enhanced/restored by 2012

Project Performance Measures Table

Project Title: The Copeland Creek Watershed Storm Water Detention, Groundwater Recharge, Habitat Restoration, and Steelhead Refugia Project

Category of Project Work Tasks: Load Reduction

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
(Phase 1) Reduce	1. Reduce in-channel	1. Amount of		1. Sonoma County Water Agency Stream Maintenance Manual	1. 30% decrease in in-channel

Project Performance Measures Table

Project Title: The Copeland Creek Watershed Storm Water Detention, Groundwater Recharge, Habitat Restoration, and Steelhead Refugia Project

Category of Project Work Tasks: Load Reduction

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
quantity of in channel sediment, re-establish limited geomorphic function (bed load movement), reduce frequency of need to implement sediment removal activities, and develop focused instream sediment collection areas	sediment deposition 2. Maintain hydraulic capacity to reduce impacts of 100 year storm 3. Establish instream sediment collection areas (at bridgeheads)	in-channel sediment removed from Copeland Creek 2. Number of instream sediment collection areas established 3. Extent of channel bottom re-graded 4. Volume of sediment removed from lower reaches	1. Percent decrease in in-channel sediment 2. Percent decrease in frequency of post-project sediment removal activities 3. Reduction in flooding frequency	2. Implementation, monitoring and maintenance Reports 3. GIS maps 4. Field measurements 5. Purchase invoices 6. Stream stage gage 7. Volume measurements (truck loads) 8. Photography 9. Instream habitat evaluation including measurements such as maximum pool depth, tail crest depth, and V*	sediment deposition by 2017 2. 50% decrease in frequency of reach-scale post-project sediment removal activities by 2017

Project Performance Measures Table

Project Title: The Copeland Creek Watershed Storm Water Detention, Groundwater Recharge, Habitat Restoration, and Steelhead Refugia Project

Category of Project Work Tasks: Water Quality

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Improve surface water quality along length of implemented Project and into the Laguna de Santa Rosa	1. Reduced suspended sediment 2. Reduce or preserve current water temperatures 3. Support populations of invertebrates that are indicators of good water quality 4. Reduce nutrient and pollutants entering the channel	1. Number of vegetated buffers installed at storm flow stream inlets 2. Number of native instream graminods planted	1. Percent reduction of pollutants, sediment, and nutrients discharged to waterbody 2. Percent reduction in number of days TMDL targets are exceeded	Implement a water quality sampling plan for Project phases that tracks influent, effluent, and receiving waters concentrations of TMDL targets	1. 30% reduction in sediment leaving the Project Area by 2013 2. 100% Compliance with SMP Programmatic Waste Discharge Requirements/ Water Quality Certification by 2013

Project Performance Measures Table

Project Title: The Copeland Creek Watershed Storm Water Detention, Groundwater Recharge, Habitat Restoration, and Steelhead Refugia Project

Category of Project Work Tasks: Education, Outreach, and Capacity-building

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Provide Educational and	1. Increased environmental awareness	1. Number of participants	1. Percent of residents of Rohnert Park/Cotati	1. Pre- and and Post-environmental program surveys	1. 85% of employed students show increased

Project Performance Measures Table

Project Title: The Copeland Creek Watershed Storm Water Detention, Groundwater Recharge, Habitat Restoration, and Steelhead Refugia Project

Category of Project Work Tasks: Education, Outreach, and Capacity-building

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Career Building Opportunities	of residents of Rohnert Park/Cotati of the importance, function and significance of streams and riparian corridors 2. Employ education and career skill building focused Youth Providers to assist with work (including but not limited to, Conservation Corps North Bay (CCNB), Summer Youth Ecology Corps, SCAYD-Sonoma County Adult Youth Development, The Center for Social and Environmental Stewardship)	2. Number of involved schools 3. Number of involved youth providers 4. Number of students employed 5. Number of workshop or group meetings and number of participants	realizing the importance, function and significance of streams and riparian corridors 2. Percent of employed students who show increased environmental awareness or indicate a greater appreciation for the importance, function and significance of streams and riparian corridors	2. Performance on formative and summative assessments (i.e. exams, papers, individual and group projects) 3. Pre- and Post- surveys of employed students 3. Opinion surveys such as http://www.michigan.gov/deq/0,1607,7-135-3313_3682_3714-75944--,00.html	environmental awareness or indicate a greater appreciation for the importance, function and significance of streams and riparian corridors by 2012

B. Klamath WMA

289 - Camp Creek Habitat Protection-Road Decommissioning Implementation Project, Karuk Tribe

Project Performance Measures Table
Project Title: Camp Creek Habitat Protection-Road Decommissioning Implementation Project

Category of Project Work Tasks: Habitat Restoration

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Protect and enhance the habitat of Coho Salmon, Chinook Salmon and Steelhead Trout populations by decreasing the present and future erosion and subsequent sediment deposition	Stream crossing fill and perched road fill volumes removed along roadways utilizing proven road decommissioning techniques.	Cubic yards removed and/or linear feet of road decommissioned measured on a weekly basis	Amount of projected fill volume removed from road/stream crossings	Field measurements taken of excavated road/stream crossings using standard Karuk/USFS protocol	Removal of at least 3,000 cubic yards of sediment from road/stream crossings by 2013
Lower the potential for introduction of Port-Orford Cedar Root Disease in Camp Creek	Roads closed to vehicular traffic	Miles of road restricting vehicular traffic	Percent of roads closed to vehicular traffic	Road lengths derived from Road Treatment Logs	2 miles of roads 100% closed to vehicular traffic by 2013
Improve habitat through treatment of invasive non-native	Reduce potential for spread of noxious weed population	Length of roadside populations of scotch broom	Percent decrease in roadside scotch broom populations	Plant surveys utilizing protocol such as *CNPS Vegetation Rapid Assessment Protocol*	At least 800 linear feet (0.25 acres) of scotch broom eradicated by 2013

Project Performance Measures Table
Project Title: Camp Creek Habitat Protection-Road Decommissioning Implementation Project

Category of Project Work Tasks: Habitat Restoration

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
weed population		treated		http://www.cnps.org/cnps/vegetation/protocol.php	

Project Performance Measures Table
Project Title: Camp Creek Habitat Protection-Road Decommissioning Implementation Project

Category of Project Work Tasks: Capacity Building

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Benefit local economically disadvantaged communities through the continuation of the restoration efforts	Retain trained workforce from local community	# of trained employees retained	% of employees returning from previous season	Payroll records	50% of employees returning from previous seasons during project implementation
Continued cooperative partnerships in a 303 (d) listed water body	Continued Restoration Partnership with USFS	Signed agreement	1 Signed MOMU	Signed agreement	Signed Karuk/USFS MOMU

Project Performance Measures Table

Project Title: Camp Creek Habitat Protection-Road Decommissioning Implementation Project

Category of Project Work Tasks: Load Reduction

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Continue water quality improvements in Camp Creek while demonstrating cost-effective preventative treatment of sediment sources	Reduction in anthropomorphic sediment sources	Number of anthropomorphic sediment sources treated	Reduction in sediment delivery to Camp Creek	Pre and post project measurements of cubic yards removed/stabilized	At least 3000 cubic yards of sediment savings by 2012

311 - Indian Creek Sewer Pipeline Crossing, Happy Camp Sanitary District

Project Performance Measures Table
Project Title: Indian Creek Sewer Pipeline Crossing

Category of Project Work Tasks: Load Reduction; Water Quality

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Significantly reduce potential for accidental discharge of raw (untreated) sewage into Indian Creek and Klamath River with associated reduction in potential adverse impacts to fisheries (including salmonids), aquatic habitat, Native American subsistence fishing and basket material gathering, recreation, and water quality.	Relocate creek sewer pipeline crossing to State Highway 96 Bridge above 100-year floodplain	Creek sewer pipeline crossing relocated to State Highway 96 Bridge above 100-year floodplain	New pipeline in use Old pipeline removed/closed	Pre- and post-construction photos showing before and after conditions of creek sewer pipeline crossing and associated items.	Completion of a quality construction project by February 28, 2013 and within budget.

Project Performance Measures Table
Project Title: Indian Creek Sewer Pipeline Crossing

Category of Project Work Tasks: Flood Attenuation and Floodplain Protection

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Significantly reduce flood damage potential to creek sewer pipeline crossing	Functional sewer pipeline crossing above 100-year floodplain	Creek sewer pipeline crossing relocated to State Highway 96 Bridge above 100-year floodplain	New pipeline in use Old pipeline removed/closed	Pre- and post-construction photos showing before and after conditions of creek sewer pipeline crossing and associated items.	Completion of a quality construction project by February 28, 2013 and within budget.

Project Performance Measures Table
Project Title: Indian Creek Sewer Pipeline Crossing

Category of Project Work Tasks: Capacity Building

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Provide infrastructure benefits to an economically disadvantaged community	Construction of upgrade to existing wastewater system to significantly reduce potential for flood damage and avoid	Completion of wastewater system upgrade	Reduction in potential for water quality impacts due to flood damage	Pre- and post-construction photos showing before and after conditions of creek sewer pipeline crossing and associated items.	Pipeline Crossing above 100-year flood plain by November 30, 2012

Project Performance Measures Table
Project Title: Indian Creek Sewer Pipeline Crossing

Category of Project Work Tasks: Capacity Building

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
	damage to the environment				
Provide job opportunity and job training benefits to the Karuk Tribe and other Native American Tribes	1. Increased funding to Karuk Tribe for Tribal Employment Rights Ordinance (TERO) activities, 2. Encouragement to hire to the extent feasible Indian-owned construction contractors and Indian workers.	1. Payment of TERO fees as part of eligible contracts. 2. Award of construction contracts to eligible Indian-owned Construction Contractors, if that Contractor meets all contract requirements and if that Contractor's bid is no more than 5% of the low bid. 3 .Construction Contractor to give preference in hiring, to the extent feasible, to Indian workers.	Percent compliance with: 1. contract requirements for TERO fees 2. contract bidding requirements for, if applicable, award of construction contracts to eligibleIndian-owned construction contractors 3. contract requirements for, to the extent feasible, increased employment for Indian workers	1. Documentation that TERO fees were paid to Karuk Tribe for all eligible contracts. 2.Documentation of Happy Camp Sanitary District compliance with contract bidding requirements for award of construction contracts to eligible Indian-owned Construction Contractors 3. Documentation of Construction Contractors' compliance with contract requirements for Indian preference hiring.	100% compliance with contract requirements regarding TERO fees, and preference to hire to the extent feasible Indian-owned construction contractors and Indian workers.

Project Performance Measures Table

Project Title: Indian Creek Sewer Pipeline Crossing

Category of Project Work Tasks: Habitat Restoration

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Creek restoration	Remove existing sewer pipelines and associated items from creek and restore creek bed to natural conditions	Sewer pipeline and associated items removed from creek bed	Abandonment of existing sewer siphon, creek sewer pipeline crossing, and sewer main	Pre- and post-construction photos showing before and after conditions of creek.	Complete removal of exposed sewer pipeline and associated items from creek bed by November 30, 2012

306 - Water Treatment System Upgrade, Happy Camp Community Services District

Project Performance Measures Table
Project Title: Happy Camp Water Treatment System Upgrade

Category of Project Work Tasks: Water Reliability Enhancement; Water Quality

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Comply with Upcoming State Drinking Water Requirements	Construction of upgrade to existing water treatment plant to meet upcoming drinking water requirements	Completion of construction project	Percent compliance with upcoming drinking water requirements	Pre- and post-construction photos showing before and after conditions and documenting installation of upgrades for treatment plant.	100 % compliance with upcoming drinking water requirements by November 30, 2012

Project Performance Measures Table
Project Title: Happy Camp Water Treatment System Upgrade

Category of Project Work Tasks: Capacity Building

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Provide infrastructure benefits to an	Construction of upgrade to existing water treatment	Completion of water treatment plant upgrade	Percent compliance with new drinking water requirements	Pre- and post-construction photos showing before and after conditions and documenting	100% compliance with new drinking water requirements by November 30, 2012

Project Performance Measures Table
Project Title: Happy Camp Water Treatment System Upgrade

Category of Project Work Tasks: Capacity Building

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
economically disadvantaged community	plant to meet upcoming drinking water requirements			installation of upgrades for treatment plant.	
Provide job opportunity and job training benefits to the Karuk Tribe and other Native American Tribes	1. Increased funding to Karuk Tribe for Tribal Employment Rights Ordinance (TERO) activities 2. Encouragement to hire to the extent feasible Indian-owned construction contractors and Indian workers.	1. Payment of TERO fees as part of eligible contracts. 2. Award of construction contracts to eligible Indian-owned Construction Contractors, if that Contractor meets all contract requirements and if that Contractor's bid is no more than 5% of the low bid. 3. Construction Contractor to give preference in hiring, to the extent feasible, to Indian workers.	Percent compliance with: 1. contract requirements for TERO fees 2. contract bidding requirements for, if applicable, award of construction contracts to eligible Indian-owned construction contractors 3. contract requirements for, to the extent feasible, increased employment for Indian workers	1. Documentation that TERO fees were paid to Karuk Tribe for all eligible contracts. 2.Documentation of Happy Camp Community Services District compliance with contract bidding requirements for award of construction contracts to eligible Indian-ownded Construction Contractors 3. Documentation of Construction Contractors' compliance with contract requirements for Indian preference hiring.	100% compliance with contract requirements regarding TERO fees, and preference to hire to the extent feasible Indian-owned construction contractors and Indian workers.

Project Performance Measures Table

Project Title: Happy Camp Water Treatment System Upgrade

Category of Project Work Tasks: Flood Attenuation and Floodplain Protection

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Reduce potential damage to electrical equipment that runs the pumps that push water through the treatment plant	Electrical equipment that runs the pumps in the treatment plant outside of the 100-year flood plain	Existing electrical equipment that runs the pumps relocated to a safe distance outside of the 100-year flood plain	Reduction in potential for damage to electrical equipment from flooding	Pre- and post-construction photos showing before and after conditions of electrical equipment that runs pumps and documenting relocation of electrical equipment.	Electrical equipment that runs the pumps situated outside of the 100-year flood plain (potential for damage to electrical equipment reduced to damages caused from a flood with a probability of occurrence of less than 1% in any given year) by November 30, 2012

C. North Coast Rivers WMA

408 - Del Norte Agricultural Enhancement Program, Del Norte Resource Conservation District

Project Performance Measures Table
Project Title: Del Norte Agricultural Enhancement Program

Category of Project Work Tasks: Water Quality Improvement

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Increased waste containment and utilization	Increase in the quality of storm water runoff	1. Number of Nutrient Management Plans implemented 2. Number of nutrient management practices implemented	1. % increased in acres utilized to filter manure water 2. % increase in areas of reduced runoff (Volume of runoff treated/diverted by structural BMPs compared to runoff volume in project area.) 3. % increase in practices designed to result in reduction of pollutant inputs. 4. Number of Waste Discharge Waivers received	1. Photo monitoring 2. As-built 3. Compliance with NRCS designs and specification 4. Field inspections	1. 50% increase in number of acres utilized to filter manure water by 2013 2. 35% increase in areas of reduced runoff by 2013 3. 10% increase in practices designed to result in reduction of pollutant inputs by 2013 4. At least 3 Waste Discharge Waivers received by 2013

352 - Gualala River Sediment Reduction Program, Gualala River Watershed Council

Project Performance Measures Table
Project Title: 352-Gualala River Sediment Reduction

Category of Project Work Tasks: Planning, Research, Monitoring, or Assessment Activities for Sediment Reduction Project

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Effectiveness assessment for adaptive management	Determine effectiveness of previously implemented projects	24 reaches evaluated	Statistically significant analyses evaluating project effectiveness	1. DFG Salmonid Habitat Restoration Manual and Project Evaluation and Monitoring (http://www.dfg.ca.gov/nafwb/pubs/1998/manual3.pdf) 2. SWRCB & CALEPA approved GRWC Monitoring Quality Assurance Program Plan	Statistically significant determination of project effectiveness with adaptive management implications by 2012
Systematic documentation and GIS mapping	Identification of erosion sites and treatment areas	1. Digitized maps 2. Thorough inventory of erosion sites and treatment areas	1. Identification of potential future treatment sites 2. Identification of existing treatment areas in need of repair	1. CWAM (http://cwam.ucdavis.edu/) 2. GRWC Sediment Reduction Database.	1. Complete inventory of erosion sites and treatment areas by mid-2011
Prioritization of sediment source treatment sites	Prioritization of erosion sites and treatment areas	Prioritized list of sediment source sites	1. Prioritized list of sediment source sites 2. Percent acceptance of prioritized sites by TAC	1. Integration of road systems and road improvements in GRWC data base and GIS mapping and prioritize through GRWEMP	1. Prioritized list of future treatment sites and existing treatment areas in need of repair by mid- 2011 2. Majority TAC acceptance of prioritized sites

Project Performance Measures Table

Project Title: 352-Gualala River Sediment Reduction

Category of Project Work Items: Education, Outreach, and Capacity-building Activities for Sediment Reduction Projects

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Educate landowners about sediment problems in the watershed and management practices to reduce sedimentation	1. Increase in the number of landowners who are knowledgeable about sediment problems in the watershed 2. Increase in management practices to reduce sediment	1. 15 landowners attending workshops or public meetings 2. Number of workshops and public meetings held 3. Expand capacity of GRWC websites 4. Number of Quarterly informative newsletters sent	Percent increase in number of landowners who are knowledgeable about sediment issues and reduction options	Opinion and behavior surveys administered before and after workshops or group meetings or mailed to landowners before and after educational events such as: http://www.michigan.gov/deq/0,1607,7-135-3313_3682_3714-75944--,00.html	1. 20% increase in landowners who attend workshops or public meetings regarding sediment reduction by 2012 2. 10% increase in landowners and public reached through GRWC website and newsletters by 2012 3. 80% of survey respondents indicating an increased awareness of sediment issues and reduction options
Increase landowner participation in sediment reduction strategies	Increase in landowners willingly implementing sediment reduction strategies on their land	1. Number of additional landowners 2. Number of rural subdivisions voluntarily participating in sediment reduction projects	1. Percent increase in number of landowners seeking to voluntarily participate in sediment reduction projects 2. Percent increase in landowners trained and certified in BMP implementation 3. Percent increase in sustained habitat maintenance and	1. Opinion and behavior surveys 2. Records of number of landowners participating in MOUs. 3. Records of number of landowners participating in grant programs.	1. 10% increase in landowners voluntarily participating in sediment reduction projects by 2012 2. 20% increase in landowners trained and certified in BMP implementation by 2012 3. 20% increase in the number of sustained habitat maintenance and management agreements by 2012

Project Performance Measures Table
Project Title: 352-Gualala River Sediment Reduction

Category of Project Work Tasks: Planning, Research, Monitoring, or Assessment Activities for Sediment Reduction Project

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
			management agreements		
Increase in resident awareness of the importance of in-stream habitat restoration.	Increase in residents volunteering for restoration workshops.	1. Number of brush rack demonstration sites 2. Number of educational events 3. Number of residents participating in educational events 4. Number of residents trained for spawning surveys	1. Percent increase in participation in volunteer programs 2. Increase in resident knowledge of the importance of riparian habitat restoration	1. Opinion and behavior surveys 2. Records of Volunteer hours	1. 20% increase in the number of residents participating in volunteer programs by 2012 2. At least 80% of survey respondents indicate an increased awareness of the importance of riparian habitat restoration

Project Performance Measures Table
Project Title: 352-Gualala River Sediment Reduction

Category of Project Work Items: Habitat Restoration Activities for Sediment Reduction Projects

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**

Project Performance Measures Table

Project Title: 352-Gualala River Sediment Reduction

Category of Project Work Items: Habitat Restoration Activities for Sediment Reduction Projects

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Improve salmonid and other wildlife habitat	Increase in the amount of salmonid and other wildlife habitat in the North Fork Basin of the Gualala.	1. Overall decrease in sediment contribution to Robinson PW and Gualala Estuary. 2. Improved summer rearing habitat for juvenile salmonids in the form of quantity and quality of pools due to reduced sediment load. 3. Decrease in cobble embedded spawning gravels in Robinson PW.	1. Percent increase in reaches with primary pools comprising > 40% of the stream reach in project reaches 2. Degree of coarsening of streambed surface particles demonstrated by an increase in D50. 3. Increase from baseline of number of juvenile and adult salmonids.	1. *GRWC Cooperative Monitoring Plan* - Restoration Evaluation using the *GRWC QAPP* 2. Thalweg surveys to determine pool depth and frequency and channel degradation. 3. Cross-sectional surveys to determine thalweg degradation and bank stability. 4. D50 surveys to determine coarsening of spawning gravels. 5. Spawning Surveys 6. Snorkel Surveys 7. Water quality testing	1. 20% increase towards primary pools comprising > 40% of the stream reach in project reaches 2. 10% increase in square area of pools by 2013 3. 10% increase in D50 particles in streambed by 2017 4. 10% increase in juvenile salmonids by 2015 5. 10% increase in adult salmonids by 2015

Project Performance Measures Table

Project Title: 352-Gualala River Sediment Reduction

Category of Project Work Items: Load Reduction Activities for Sediment Reduction Projects

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Contribute to the achievement of TMDL sediment target for specific watershed	Reduction of sedimentation to natural background levels/reference conditions through implementation of erosion control and prevention management measures	1. Number of miles of high-priority roads decommissioned/abandoned 2. Number of sediment treatment sites corrected 3. Number of landowners voluntarily implementing sediment-related BMPs	1. Percent increase in certified practices designed to result in reduction of sediment inputs into listed waterbodies 2. Percent attainment for the North Fork SPW sediment TMDL	1. Photo monitoring 2. DFG Salmonid Habitat Restoration Manual Habitat Inventory Methods (http://www.dfg.ca.gov/nafwb/pubs/1998/manual3.pdf) 3. DFG Salmonid Habitat Restoration Manual Upslope Assessment and Restoration Practices 4. SWRCB & CALEPA approved GRWC Monitoring Quality Assurance Program Plan 5. GRWC Restoration Program database	1. 80% percent increase in voluntary landowner implementation of BMPs by 2013 2. 42% TMDL attainment for the North Fork SPW By 2013
Contribute to the achievement of NCRWQCB Basin Plan goals for sediment reduction	Stabilize soil to prevent sedimentation	1. Number of miles of high-priority roads decommissioned or abandoned 2. Number of miles of upgraded roads 3. Number of sediment source treatments 4. Number of landowners voluntarily implementing sediment-related BMPs	1. Number of yds^3 prevented from entering the watercourses.	1. Project database 2. To be negotiated with grant manager	1. Prevention of 30,000 yds^3 from entering watercourses by 2013 2. Achievement of NCRWQCB Basin Plan goals for sediment reduction by 2013

Project Performance Measures Table

Project Title: 352-Gualala River Sediment Reduction

Category of Project Work Items: Load Reduction Activities for Sediment Reduction Projects

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Improve drinking water quality	Prevent sediment delivery to drinking water intakes	1. 90 sediment source treatments 2. 3 landowners voluntarily implementing sediment-related BMPs	Percent increase in water clarity.	1. Photo monitoring 2. Transparency Tube monitoring protocol	20% increase in water clarity

444 - Mattole Integrated Watershed Management Initiative, Mattole Restoration Council

Project Performance Measures Table
Project Title: Mattole Integrated Watershed Management Initiative

Category of Project Work Tasks: Water Conservation, Supply Reliability Enhancement, and Recycling

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Augment seasonal stream flow through the installation of 7 50,000 gallon water storage systems	1. Sustain summer stream flows above minimum thresholds for quality aquatic habitats in critical reaches 2. Reduce juvenile salmonid mortality 3.Sustain water quality by ensuring cold water inputs in the headwaters continue to flow through the dry season	1. Number of gallons of avoided diversions 2. Number of landowners with forbearance agreements and water management plans	1. Increased dry season streamflow	River flows will be measured in each critical reach using data logging pressure transducers calibrated to the site with a Marsh-McBirney meter (see Chapter 3, *Mattole Watershed Plan*)	1. Gopherville Reach above the acceptable minimum flow threshold of 3.6 GPM for entire dry season beginning in 2013 1. Thorn Junction Reach above the minimum flow threshold of 11.4 GPM for entire dry season beginning in 2013

Project Performance Measures Table

Project Title: Mattole Integrated Watershed Management Initiative

Category of Project Work Tasks: Habitat Restoration

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Riparian restoration utilizing native grass, shrub, and tree species and invasive non-native weed eradication on previously identified high-priority sites	1. Contribute towards achievement of sediment and temperature TMDL 2. Improve riparian shade and habitat	1. Number of native tree, shrub, grass species planted. 2. Number of acres of riparian habitat restored to pre-1942 conditions with respect to species composition and presence/absence of invasive non-native weeds. 3. Number of stream miles treated for streambank erosion	1. Percent decrease in pre- and post-project turbidity 2. Percent increase in riparian cover with treated stream reaches 3. Percent decrease in invasive non-native populations in riparian areas basin-wide 4. Percent decrease in active stream channel erosion within treated stream reaches	1. Riparian reforestation seedling survival plots and species characterization plots (protocols to be described in the *Mattole IWMP QAPP* and *Monitoring Plan*, roughly based on US Forest Service Forest Inventory Analysis protocols http://www.fs.fed.us/pnw/fia/) 2. Invasive non-native weed surveys and pre- and post-project photodocumentation (*Mattole IWMP QAPP* and *Monitoring Plan*, SWRCBN Photodocumentation protocols) 3. DFG Salmonid Habitat Restoration Manual Habitat Inventory Methods and Project Evaluation and Monitoring	1. 20% decrease in turbidity by 2017. 2. 20% increase in riparian cover by 2017 3. Achievement of "potential effective shade" targets in temperature TMDL for Mattole tributaries within sediment and riparian restoration treatment areas by 2017 4. 100% decrease in invasive non-native weed population within treatment areas by 2013 5. 45% decrease in active stream channel erosion within treated stream reaches by 2017

Project Performance Measures Table

Project Title: Mattole Integrated Watershed Management Initiative

Category of Project Work Tasks: Planning, Research, Monitoring, and Assessment

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Assess turbidity during project implementation by collecting turbidity samples and discharge readings during winter storm events during 2-year project period using "recessional-limb storm sampling" to compare "lower bound lines" [1] **(Task 4.1)**	1. Enhanced understanding of variation in turbidity levels between streams 2. Enhanced understanding of turbidity response to restoration and management actions 3. Enhanced understanding of effect of natural conditions on turbidity levels	1. Protocols and QAPP approved 2. Number of streamflow measurements for stage/discharge rating curve 3. No. of samples collected 4. Samples analyzed in relation to tributary characteristics 5. Reports completed	1. Enhanced conceptual understanding of watershed response to sediment reduction treatments 2. Enhanced understanding of sediment reduction treatments affect on turbidity levels over time	1. Manual turbidity "recessional-limb storm sampling" to develop "lower bound lines". 2. Approval of final report by Mattole TAC	1. Sufficient samples collected at each of five (5) sites (20-100 annually, depending on storm events) during 2011 – 2013 to allow for analysis 2. Final report containing turbidigraphs and analysis of turbidity relative to restoration treatments and natural features of drainage basins by 2014
Evaluate riparian restoration activities in year 2 of project period.	Statistically-significant determination of seedling survival and growth, and of species composition within treatment areas	Completion of data collection, analysis and reporting at 100% of riparian restoration treatment sites.	1. Quantitative analysis of riparian reforestation seedling survival and growth reported by slope, aspect and planting year. 2. Quantitative analysis of tree species composition within treatment area.	1. Mattole Restoration Council Seedling Survival and Growth Surveys (see Chapter 8, Mattole Watershed Plan) 2. Species composition protocols. Phase II Forest Inventory Analysis protocols (see http://www.fs.fed.us/pnw/fia/)	1. Refined understanding of factors affecting riparian reforestation effectiveness during 2011 – 2013 within the Mattole basin
Assess streamflow in	1. Understand the	1. Completion of data	1. Enhanced	1. River flows will be measured in	1. Sufficient samples collected

[1] Description of methodology in *Mattole Restoration Council Monitoring Plan For Turbidity Associated with Road Upgrading and Decommissioning In the Lower Mattole River, 2008-2012*, Randy Klein, 2008.

Project Performance Measures Table

Project Title: Mattole Integrated Watershed Management Initiative

Category of Project Work Tasks: Planning, Research, Monitoring, and Assessment

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
the Mattole headwaters during the 2-year project period	effects of the tank and forbearance program on water flows 2. Initiate accurate timing of "no pump" season for participants in the Tank and Forbearance program	collection, analysis, communication with tank program participants 2. Number of landowners who turn off instream pumps for water usage once forbearance season is identified	understanding of the tank and forbearance program on streamflows in GPM	each critical reach using data logging pressure transducers calibrated to the site with a Marsh-McBirney meter. (see Chapter 3, *Mattole Watershed Plan*)	at each of the 2 sites to allow for accurate readings throughout the low-flow season for 2011 - 2013 2. Evaluative report with preliminary findings regarding effects of the tank and forbearance program on water flows 2013
Groundwater monitoring	Gather baseline data about groundwater levels in order to effectively plan future groundwater recharge projects to enhance streamflows	1. Number of samples collected 2. Analysis of groundwater monitoring data	Identification of optimal locations for future groundwater recharge ponds	Measure depth of water throughout the year at a minimum of 7 groundwater monitoring stations	Final report detailing locations sampled and recommendations for future groundwater recharge ponds by 2013

Project Performance Measures Table

Project Title: Mattole Integrated Watershed Management Initiative

Category of Project Work Tasks: Load Reduction

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Prevent sediment loading into blueline streams through installation of 750 feet of bioengineered willow fencing on prioritized stream reaches	1. Contribute towards achievement of sediment TMDLs 2. Improved riparian habitat conditions	Number of feet of bioengineered willow fence installed	1. Percent decrease in active stream channel erosion within treated stream reaches 2. Percent increase in suitable salmonid habitat 3. Percent decrease in turbidity duration	1. Photomonitoring 2. Manual turbidity "recessional-limb storm sampling" to develop "lower bound lines". 3. DFG Salmonid Habitat Restoration Manual Habitat Inventory Methods (http://www.dfg.ca.gov/nafwb/pubs/1998/manual3.pdf	1. 90% reduction of potentially-deliverable sediment at treated sites by 2012 2. Increase in suitable salmonid habitat within project treatment area by 30% by 2017 3. 20% decrease in turbidity duration relative to control sites, measured as slope of turbidity lower-bound line by 2013

Project Performance Measures Table

Project Title: Mattole Integrated Watershed Management Initiative

Category of Project Work Tasks: Other

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Capture and rear juvenile coho salmon in the Mattole headwaters	1. Increase survival of juvenile coho salmon 2. Successfully operate rearing facility 3. Continued coordination and collaboration with partner agencies	1. Recovery Rearing Management Plan (RRMP)approved by NOAA Fisheries 2. Number of fish captured and reared 3. Number of fish released	1. Percent increase in juvenile survival 2. Facility operations in accordance with RRMP 3. Technical Working Group coordination meetings and check-ins	1. Recovery Rearing Management Plan 2. CDFG Stream Habitat Restoration Manual 3. CDFG Coho Recovery Strategy 4. Facility checks and assessments 5. Outmigration trapping	1. 50% increase in juvenile survival by 2017 2. Facility operations in 100% compliance with RRMP 2. Monthly coordination with Technical Working Group through 2017

358 - Mendocino Headwaters Integrated Water Quality Enhancement Project, Mendocino County RCD

Project Performance Measures Table
Project Title: Mendocino Headwaters Integrated Water Quality Enhancement Project

Category of Project Work Tasks: Load Reductions

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Decommission three miles of unimproved road in the Little North Fork Big River/Berry Gulch	Prevent an estimated 6,024 cubic yards of sediment from delivering to coho salmon streams	1. Number of miles of unimproved forest roads decommissioned 2. Number of sediment-related BMP's voluntarily implemented by JDSF (landowner) .	Decreased sedimentation into streams	*DFG's CA Salmonid Stream Habitat Restoration Manual*, Chapter 10 Photo-monitoring	Sedimentation reduced by 6,024 cu. yds. between 2011 & 2021
Upgrade five stream crossings to restore fish passage and to reduce sediment delivery to streams	Prevent an estimated 790 cubic yards of sediment from delivering to streams and restore approximately 1.26 miles of available salmonid habitat	1. Number of stream crossings upgraded to 100-yr event 2. Number of bridges and culverts installed to prevent delivery of estimated 790 cu yds of sediment to streams 3. Number of miles of available habitat opened for salmonid migration	1. Percent reduction in culvert failure during annual storm events for 20 years 2. Decreased sedimentation into streams 3. % compliance with Navarro watershed TMDL TSD 4. Increased upstream habitat made accessible to migratory salmonids	1. *Handbook for Forest and Ranch Roads*, Hagans and Weaver, 1994 2. *DFG's CA Salmonid Stream Habitat Restoration Manual*, Chapters 9 & 10 3. NOAA *Guidelines for Fish Passage* 4. Photo-monitoring	1. 100% reduction in culvert failure in treated areas through 2032 2. Reduction of sediment delivery to streams by 790 cu. yds. by 2021 3. 100% achievement of Navarro watershed TMDL TSD by 2021 4. At least 1.25 miles previously inaccessible habitat available to migratory salmonids by 2012

Project Performance Measures Table

Project Title: Mendocino Headwaters Integrated Water Quality Enhancement Project

Category of Project Work Tasks: Habitat Restoration

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Restore two acres of riparian habitat along the upper Russian River on the Yokayo Rancheria	1. Removal of two acres of invasive non-native*Vinca major* (Periwinkle) and revegetate with native, culturally significant site specific plant material	1. Number of acres of riparian habitat restored to provide habitat, cultural resources, and contribute to meeting temperature TMDL 2. Number of Yokayo Rancheria (landowners) voluntarily implementing temperature-related BMP's.	1. Percent reduction in invasive *Vinca major* (Periwinkle) population 2. Percent survival of native plants installed	1. DFG's CA Salmonid Stream Habitat Restoration Manual, Chapter 11 2. Photo-monitoring	1. 75% reduction in Vinca major populations by 2014 2. 75% survival of installed native plants by 2014

355 - Real-Time Weather Data for Irrigation Water Management, Del Norte Resource Conservation District

Project Performance Measures Table
Project Title: Real-Time Weather Data for Irrigation Water Management

Category of Project Work Tasks: Outreach

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Make local crop water use data available to land managers	Increase water use efficiency	1. Number of participants in DWR CIMIS training 2. Face to face review of irrigation season with land managers	1. Percent increase in landowners trained and certified in BMP implementation 2. Percent of survey respondents who accept evapostraspiration as a tool to increase irrigation water efficiency 3. Percent of land managers utilizing evapotranspiration as a tool to increase irrigation water efficiency	Post-training surveys and irrigation season reviews such as: http://www.michigan.gov/deq/0,1607,7-135-3313_3682_3714-75944--,00.html	1. 75% increase in landowners trained and certified in BMP implementation by 2013 2. 75% survey respondent acceptance of evapotranspiration as a tool to increase irrigation water efficiency 3. 30% of land managers surveyed utilizing evapotranspiration as a tool to increase irrigation water efficiency by 2013

441 - Waterfall Gulch Transmission Main, City of Fort Bragg

Project Performance Measures Table
Project Title: Waterfall Gulch Transmission Main Project

Category of Project Work Tasks: Water Conservation, Supply Reliability Enhancement, and Recycling

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Improve system reliability	1. Increased flow from gravity fed water supply 2. Reduced pumping from 303(d) Noyo River source	Number of actions implemented to improve system reliability	1. Percent reduction in pumping cost from Noyo source 2. Percent increase in meter reading from Waterfall Gulch Source	1. Analysis of electric bills 2. Analysis of meter readings from meter at Waterfall Gulch source	1. 5% percent decrease in pumping cost by 2012 2. 8% increase in flow from Waterfall Gulch source by 2012
Maintain critical water supply for DAC.	Eliminated or reduced Stage Water Emergencies	Number of conservation notices issued to public	% reduction in number of Stage Water Emergencies issued by City	City Records	100% reduction in number of Stage Water Emergencies – provide sufficient water supply to City year-round with no need for critical conservation or issuance of Stage Water Emergency Notices by 2012
Improve system operation and maintenance.	1. Access to pipeline re-established. 2. Breakages/Leaks eliminated or greatly reduced.	1. Implementation of vegetation removal. 2. Implementation of procedures for inspection of pipeline on a regular basis.	1. Increased inspection and maintenance of pipeline 2. Percent reduction in service calls and work orders for breakages/leaks.	1. Invasive plant removal techniques such as: Practical Guidebook to the Control of Invasive Aquatic and Wetland Plants of the San Francisco Bay-Delta Region; http://legacy.sfei.org/nis/additional.html#download 2. Agency-approved inspection and maintenance protocol	1. Successfully conduct 100% of needed pipeline inspection and maintenance (as identified in Column C) by 2012 2. 100% reduction (complete elimination) of service calls and work orders for emergency fixes to pipeline by 2012

D. Humboldt Bay WMA

362 – Blue Lake Fieldbrook Pipeline Support Retrofit, Humboldt Bay Municipal Water District

Project Performance Measures Table **Project Title: Project Name Project 362 - HBMWD-Blue Lake Fieldbrook Pipeline Support Retrofit** **Category of Project Work Tasks: Planning, Research, Monitoring and Assessment**					
A	**B**	**C**	**D**	**E**	**F**
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**

Project Performance Measures Table **Project Title: Project Name Project 362 - HBMWD-Blue Lake Fieldbrook Pipeline Support Retrofit** **Category of Project Work Tasks: Planning**					
A	**B**	**C**	**D**	**E**	**F**
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Site Assessment	Elevation, soils, and ground stability data	100% Completion of field studies and calculations and completion of geotechnical report	Stability data certified by a licensed engineering geologist for approximately 0.5 acres at the project site	1. Studies conform to applicable standards 2. Preliminary Design can begin	1. Final study stamped by licensed professional by December 2010 2. Preliminary Design (50%) by May 2012
Safe Project Design	Suspension crossing design that meets seismic standards and complies with environmental regulations	1. 100% Completion of CEQA, submittal of interim design plans and specs and 100% sets of design plans and specs 2. Applicable permit approval 3. Submit awarded bid	Design plans reviewed and approved by HBMWD, and CDPH, and stamped by a licensed civil engineer	1. Final design meets all applicable standards 2. Construction Inspections can begin	1. 100% plans and specs approved by Humboldt County, and a licensed civil engineer by October 2012 2. Submit awarded bid documents by November 2012

Project Performance Measures Table
Project Title: Project Name Project 362 - HBMWD-Blue Lake Fieldbrook Pipeline Support Retrofit

Category of Project Work Tasks: Planning

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
		documents 4. Notify grant manager in writing of construction contractor and initiation date 5. Document As-Build Drawings 6. Schedule final inspection with the Grant Manager			

Project Performance Measures Table
Project Title: Project Name Project 362 - HBMWD-Blue Lake Fieldbrook Pipeline Support Retrofit

Category of Project Work Tasks: Water Supply Reliability

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Improved Water Supply Reliability	Increased water supply reliability for Blue Lake and FGCSD	Construction of an aerial pipeline above the 100-year floodplain	Equivalent water supplied through pipeline that crosses the Mad River via suspension system that meets existing seismic standards and is expected to withstand foreseeable earthquake and flooding events	Raw water demand records and metered water records per HBMWD's SCADA system.	100% of water supplied to Blue Lake and FGCSD through improved suspension crossing by March 2014

E. Eel River WMA

405 – Sustainable Forests, Clean Water & Carbon Sequestration Demonstration Project, Redwood Forest Foundation Inc.

Project Performance Measures Table **Project Title: WBWG Biochar Demonstration Project** **Category of Project Work Tasks: Education, Outreach, and Capacity Building**					
A	**B**	**C**	**D**	**E**	**F**
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Create an acorn harvesting orchard	Select appropriate site and size of orchard that enables traditional Native American harvest	Number of tours with native American representatives for site selection	Site selection accomplished	1. Location documented 2. Acres measured	One site selected for acorn harvesting orchard in 2011
Convert excess biomass into a usable value added product that has environmental and social benefits	Select appropriate site to locate the biochar facility	1. Number of tours taken with Usal Redwood Forest management company 2. Creation of a short list	Site selection accomplished	1. Location documented 2. Acres measured	One site selected to locate the biochar facility
Create an acorn harvesting orchard	Acorn harvesting	Tons of biomass removed per acre Acres of biomass removal	1. Percent increased in number of Native American visitors to Usal Redwood Forest 2. Percent increased in lbs. of acorns harvested in	1. Head count 2. User surveys such as: http://www.michigan.gov/deq/0,1607,7-135-3313_3682_3714-	1. 25% increase in number of Native American visitors to Usal Redwood Forest by 2012 2. 10% increase in lbs. of acorns harvested by 2013

			selected site	75944--,00.html	
Convert excess biomass into a usable value added product that has environmental and social benefits	Biochar production	1. BDT of biomass removed 2. Tons of biochar produced	1. Amount of biochar sold 2. Amount of carbon sequestered	1. Tons of biochar sold 2. Tons of biochar produced / carbon per ton of biochar	1. 375 tons of biochar sold by 2014 1. 1125 tons of carbon sequestered by 2014
Off-set the Cost of the Biomass Removal	Net revenue produced from the sale of biochar greater than cost of biomass removal	Tons of biochar produced	Tons of biochar sold above cost	Financial accounting	$270,000 in net revenue by 2012
Replicate this project regionally	Increased use of biochar facilities regionally	1. Number of technical transfer/ outreach/ education meetings 2. Attendance at technical transfer/ outreach/ education meetings	Number of additional biochar facilities functioning throughout the region	Administrative records	% 100 increase in biochar production facilities operating in the region by 2013

Project Performance Measures Table
Project Title: WBWG Biochar Demonstration Project

Category of Project Work Tasks: Habitat Restoration

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Improve forest health (waterflow, fire	1. Increased water flow	1. Tons of biomass removed per acre	1. Increased annual water flow	1. Steam Gauge 2. BDT processed	1. Flow increased by .09 gal/ sec/ yr from 2014 to 2020

Project Performance Measures Table
Project Title: WBWG Biochar Demonstration Project

Category of Project Work Tasks: Habitat Restoration

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
prevention, larger growing trees etc.)	2. Decreased vulnerability to catastrophic fire events 3. Larger growing trees	2. Acres of biomass removal	2. Increased minimum discharge 3. Increased space around remaining trees	3. Humboldt State University Observation	2. Increased minimum flow of .03 L/sec./yr from 2014 to 2019 3. 1,480 BDT of biomass removed by 2012

Project Performance Measures Table
Project Title: WBWG Biochar Demonstration Project

Category of Project Work Tasks: Planning, Research, Monitoring, and Assessment

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Replicate Project Regionally	Documentation of improvements to water flow, ecosystems, air emissions, product purity and financial viability to	1. Partnership with Humboldt State University and/or U.C. Extension established 2. Monitoring tasks assigned 3. Baseline data collected	All monitoring data documented in an easily understandable format	These methods will be developed by HSU and or U.C. Extension in collaboration with the WBWG and RFFI utilizing state-accepted protocols such as those available from SWAMP; http://www.waterboards.ca.gov/water_issues/programs/swamp/qapp.shtml	1. Documented annual flow each year from 2012-2014 2. Documented minimum discharge each year from 2012-2014 3. Baseline conditions measured 4. Standardized

Project Performance Measures Table
Project Title: WBWG Biochar Demonstration Project

Category of Project Work Tasks: Planning, Research, Monitoring, and Assessment

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
	provide incentive for project duplication throughout the region				measurements of ecosystem health created 5. 6. Monthly documentation of biochar produced and sold , monthly difference and aggregate difference 7. One report on biochar purity before Weekly documentation of maintenance performed

F. Trinity River WMA

357 - Hwy 96 Stormceptor, Willow Creek Community Services District

Project Performance Measures Table
Project Title: Hwy 96 Stormceptor

Category of Project Work Tasks: Habitat Restoration

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Prevent Damage to Existing Habitat	To achieve no decreases in aquatic or riparian habitat due to runoff from the project area.	Amount of riparian and aquatic habitat area	Percent reduction in existing habitat	No quantifiable measurement can be made for this goal, as the current impact is not known.	Less than 3% reduction in habitat upon project completion in 2011

Project Performance Measures Table
Project Title: Hwy 96 Stormceptor

Category of Project Work Tasks: Load Reduction

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Reduce turbidity loads to the Trinity River	Reduce turbidity in runoff from the project area	Amount of turbidity (NTU) in the Trinity River and willow creek	Improved water quality at the existing water intake.	Water quality monitoring using protocols such as: http://www.waterboards.ca.gov/water_issues/programs/swamp/qapp.shtml	Less than 10 NTU entering water system by 2012

Project Performance Measures Table
Project Title: Hwy 96 Stormceptor

Category of Project Work Tasks: Load Reduction

A	B	C	D	E	F
Project Goals	**Desired Outcomes**	**Output Indicators**	**Outcome Indicators**	**Measurement Tools and Methods**	**Targets**
Reduce contaminant loads to the Trinity River	Reduce contaminants in runoff from the project area	Specific contaminant levels	Percent reduction in specific contaminant levels	SWAMP-compatible water quality tests for specific contaminantssuch as: http://www.waterboards.ca.gov/water_issues/programs/swamp/qapp.shtml	100% reduction in existing contaminant levels by 2012